IEEE P802.11  
Wireless LANs

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| 802.11  Proposed Response to liaison from Wireless Broadband Alliance (WBA) to IEEE 802.11 Working Group on MAC address randomization impacts | | | | |
| Date: 2018-11-13 | | | | |
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**Abstract**

This document contains the proposed response to the liaison statement from the Wireless Broadband Alliance (WBA) on MAC address randomization impacts (11-18/1579r1)

R0: Initial revision; incomplete – need to pick up from where this left off on Oct 11 teleconference.

IEEE 802.11 WLAN Working Group  
DRAFT Liaison Communication

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| Source: | IEEE 802.11 Working Group[[1]](#footnote-1) | |
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| Subject: | Liaison communication reply to *WBA Liaison Statement – MAC Randomization Impacts* | |
| Approval: | Approved by the IEEE 802.11 Working Group at IEEE 802.11 [plenary | interim] meeting, [where], [date] | |

Dear Bruno and Michael,

IEEE 802.11 Working Group is pleased to have received your liaison on September 11, 2018, regarding concerns expressed by the WBA community concerning impacts of client devices anonymizing (randomizing) their MAC address.

IEEE 802.11 WG would like to respond with some general comments, and also some specific responses on your detailed bullet points, further below.

In general, to enhance user privacy, IEEE 802.11 recommends against using any MAC address as an identifier for a user or device, ouside the scope of the layer 2 communication. Most of the examples/scenarios provided in the WBA liaison are examples of misuse of the MAC address as such an identifier, and our opinion is that the system or application should be modified to use a more appropriate identifier, preferably one that can be protected from eavesdropping to protect the user’s privacy of identity.

We also note that we have received reports that some generally available devices are already using a randomized MAC address for association, extending this behavior beyond the address used for probes and other pre-association interactions.

<are references from 802.11aq and 802.11-2016 needed/useful? It seems that WBA may already know this, perhaps?>

IEEE 802.11 WG believes that IEEE 1609.3 and SAE J2945/1 have deployed MAC address randomization when out of the context of a BSS, and this has been working for years. It seems possible that methods of client identification used in that context could be adapted for use within a infrastructure network, and might provide a starting point for such work.

Specific comments on bullet points:

* MAC-based identification (such as MAC Authentication, etc.):
  + Device or user identification needs to use a specific mechanism that is permanently and privately connected to the device or user. MAC addresses are not private, and should not be assumed to be permanent.
  + We recognize that this a potential change to current behavior. Appropriate organizations should be brought in to the discussion (as you are doing) to solve the problem within their specific domains.
* Combinations of more than one SSID and more than on MAC address:
  + We note that multiple, distinct scenarios are covered by this bullet:
    1. A single device which connects to the same SSID using more than one Passpoint profile, over time. We assume an example of this is a device that has multiple subscriptions configured, that are all valid for use on this same SSID (for example, a “neutral host” hotspot).
    2. A single device which connects using the same Passpoint profile across multiple SSIDs. We assume an example of this is a single provider’s network that is available via more than SSID.
    3. ??
  + Both the above scenarios are outside the scope of 802.11, as the interaction of Passpoint profiles and ESSs (“SSID”s) is beyond 802.11’s scope. Since Passpoint behavior is defined by the Wi-Fi Alliance, they may be better positioned to address this point.
* Different bands with different SSIDs:
  + Refer to general statement above, to not use a MAC address as a device identifier.
  + Also, we agree that band steering in this scenario is likely an issue. We recommend that 802.11 should look into this, perhaps providing recommendations about SSID assignment, depending on network deployment and goals (there may be scenarios where different SSIDs are necessary/desirable). 802.11 should coordinate with WFA on this topic.
* Even if the MAC address is “stable” for a given SSID, many clients will use the broadcast SSID in probe requests, and hence there is again no stability in MAC address.
  + Refer to general statement above, to not use a MAC address as a device identifier.
  + In this case, we agree that client steering is likely an issue. We recommend that 802.11 should look into this. 802.11 should perhaps coordinate with WFA on this topic, depending on our findings.

We look forward to continued collaboration between IEEE 802.11 WLAN Working Group and WBA.

Sincerely,

Dorothy Stanley

Chair, IEEE 802.11 WLAN Working Group

1. This document represents the views of the IEEE 802.11 Working Group,and does not necessarily represent a position of the IEEE, the IEEE Standards Association, or IEEE 802. [↑](#footnote-ref-1)